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THE FIRST ENTOMOLOGICAL SOCIETIES. AN EARLY CHAPTER IN ENTOMOLOGICAL HISTORY IN ENGLAND

By FRANCIS J. GRIFFIN.

(Registrar, Royal Entomological Society of London.)

THE history of Entomology in this country has still to be written, but it is perhaps not out of place to put on record the story of the activities of the British entomologists who made the first attempts to found societies for the organised study of our science in Great Britain, all the more so because there have recently come into the possession of the Royal Entomological Society of London various manuscripts which add considerably to our knowledge of these activities. I take this early opportunity of thanking Mr. N. D. Riley and Mr. A. Cockburn Townsend, both of the British Museum, who have read this paper in manuscript and suggested modifications which I have gladly incorporated in the paper.

For the origins of Entomology, one must seek much farther back in history than is required by my present purpose, but modern entomology may perhaps be considered to date from 1758, when Linnaeus published the 10th edition of his *Systema Naturae*, now universally regarded as the starting-point, at least so far as concerns nomenclature, the key to any organised biological science.

It will naturally be understood that this starting-point was not the sudden result of a spontaneous effort on the part of Linnaeus or of any of his contemporaries and in point of fact the actual year is no more than a matter of convenience, chosen because the 10th edition happened to be published then.

So far as I am aware, there is no record of any attempt at the formation of an Entomological Society anywhere in the world earlier than that which I shall presently mention, and it is a matter of particular interest to our society that apparently almost a century elapsed between the first attempts, all of which took place in London, and those of our continental colleagues.

I. THE [FIRST] AURELIAN SOCIETY [1742-1748].

To this Society Benjamin Wilkes (1742) dedicated his work entitled "Twelve new designs of English Butterflies" in 1742, as follows: "Dedication to the worthy Members of the Aurelian Society."

In his "Review of the rise and progress of the science of Entomology in Great Britain" Haworth (1807) said of Wilkes' book: "The author informs Ladies and Gentlemen, that they may inspect the original Insects, from whence these ingenious designs were taken, in his own collection in Fleet Street; which we believe is still in existence, and in the possession of the Linnean Society of London; arranged somewhat after the manner of the above-mentioned plates."

The next reference to this Aurelian Society is by Moses Harris (1766), who chose to preserve some of the details regarding the Society by the same method as Wilkes. In the Preface to his *Aurelian* published in 1766 he said: "It is now above twenty years since I first began to collect and pursue the study of Insects; the first hint I received was from Mr. Moses Harris, an Uncle of mine, who was then a member of the old Society of Aurelians [*i.e.*, the one now under discussion], which was held at the Swan Tavern in Change-Alley: I was then too young to be admitted a member, tho' the strong inclination I had to be searching into this part of Natural History, made me very desirous: I was then but twelve years old, so obliged to defer it, till age should ripen and furnish

me with sufficient sagacity, whereby I might become fitting for the company of that ingenious and curious body of people. I was, however, deprived of that pleasure, for not long after the great Fire happened in Cornhill, in which the Swan Tavern was burnt down, together with the Society's valuable collection of insects, books &c. and all their regalia: The Society was then sitting, yet so sudden and rapid was the impetuous course of the fire, that the flames beat against the windows, before they could well get out of the room, many of them leaving their hats and canes; their loss so much disheartened them, that altho' they several times met for that purpose, they never could collect so many together, as would be sufficient to form a Society, so that for fourteen years, and upward, there was no meeting of that sort, till Phoenix-like our present Society arose out of the ashes of the old."

The fire which brought the Society to an end occurred on 25 March, 1748 (Neave & Griffin, 1933). Thus the [first] Aurelian Society was in existence at least from 1742 to 1748.

It would be of great interest to know what constituted the "regalia" referred to, and to know what was contained in the collection and library, but no further information is recorded so far as I know.

The name Aurelian was formerly given to "a collector and breeder of insects, especially of butterflies and moths; a lepidopterist" according to the *Oxford English Dictionary*. Its origin is given as the word "*Aurelia* from the Latin *aurum* = gold, thus synonymous with a chrysalis." It was used by Topsell in 1607 for the pupa of an insect, especially of a butterfly. Perhaps the most recent usage was by the late Prof. Selwyn Image, whose portrait, with that of the late Dr. T. Longstaff, was exhibited in the Royal Academy of 1909 under the title of "The Aurelians." The portrait is now in the keeping of the Royal Entomological Society of London, to whom it was presented by Mrs. Image. It is painted by I. Cooke.

II. THE [SECOND] AURELIAN SOCIETY [1762-1766].

For their second attempt the London Entomologists chose the same name and another AURELIAN SOCIETY was founded in London in 1762, according to Hagen (1863).

As stated already (above), Harris (1766) has recorded certain information regarding this Society. On the title-page to his work he described himself as "Secretary to the Aurelian Society" and the book is dedicated thus: "Dedication to the President, and the rest of the gentlemen, the worthy members of the Aurelian Society."

In the Library of the Royal Entomological Society of London is a copy of the *Aurelian* with the year 1778 added to the title-page. On this copy Harris is still described as "Secretary to the Aurelian Society" although this description is missing from the title-page of his *The English Lepidoptera: or the Aurelians pocket companion* which appeared in 1775. Since Harris was his own publisher, this requires explanation which, fortunately, is available. I find on examination that the title-page to the later "edition" of the *Aurelian* is identical with that of the earlier edition but that added at the foot is the later date and the name of J. Robson of New Bond Street. It is clear that Robson obtained a stock of the title-pages and caused his name and the date to be overprinted thereon before he issued more copies of the book.

I have traced no further information regarding this Aurelian Society and cannot find that it continued after 1766.

Haworth (1807) wrote of Harris: "It is moreover said of Moses Harris, that

he was one of the very first who endeavoured to form 'A Society of Aurelians' in this country, for the purpose of recording and diffusing the knowledge he had acquired; of which, however, nothing further need be mentioned in this place, as it will be much more appropriately treated of by our able Secretary [J. Surr] in a paper on the 'History and Intentions of the Entomological Society,'¹ which he is preparing to request the Society's acceptance of:—and which, should public approbation encourage it, will be succeeded by a series of papers from my own pen, concisely explaining the contents of the Entomological Cabinet."

I think it probable that Haworth was either unaware that there were two Moses Harris, as is obvious from the remarks of Harris the younger (1766), or else, as is less likely, he was unaware that there were two Aurelian Societies.

Surr's (1812) paper, referred to by Haworth, was published after several delays, and probably in very abbreviated form, in 1812. Since it more closely concerns the affairs of a later society, it is fully dealt with on p. 57.

III. THE SOCIETY OF ENTOMOLOGISTS OF LONDON [1780–1782].

For their third attempt at the formation of a Society the London Entomologists temporarily discarded their attachment to the name Aurelian and the next Society recorded is THE SOCIETY OF ENTOMOLOGISTS OF LONDON, of which several records exist. These appear to emanate all from the same source, which I am happy to have traced in some original contemporary documents.

Newman (1835) records that the Society was established in 1780 and continued to the first week in August 1782: he referred to Haworth as the source of his information. Haworth's information is found recorded in the minute book of the [third] Aurelian Society and [first] Entomological Society of London, which is now in the care of the Royal Entomological Society of London. On page 28 of this book is this:—

"10. The President [Haworth], shewed the Members a MSS. book being the ORIGINAL MINUTE BOOK, and containing the LAWS, of a Society of Entomologists, long since existing in London—it is dated the first week in May 1780." The book was exhibited to the Society at the meeting of the [third] Aurelian Society held at Haworth's house in Little Chelsea "near London" on 14 January, 1805, and at the end of the minutes, also in Haworth's handwriting, is the following: "Mem. The President [Haworth], who acted as Secretary, having thought proper, to extract much valuable information from the Minute book alluded to in Section 8 [*recte* 10] on the preceding page; it was thought advisable in order to preserve it, to copy it in here.

"The following is a copy of the Laws of the said Society, to which are subjoined, the names of the Members.

"We who have hereunto subscribed, do hereby promise, each for himself, that we will endeavour to promote the good of the Society of Entomologists of London, for the study of insects, and to pursue the end for which the same was founded. That we will be present at the meetings of the Society as often as we conveniently can especially at the Anniversary elections; and upon extraordinary occasions: and that we will observe and abide by, the Statutes and orders of the said Society; provided we have liberty to withdraw ourselves from the Society, when we think proper, by signifying such our intention to the president of the Society for the time being by Letter.

(Signed)

1. D. Drury. Wm. Honey. John Swift. John Francillon.
5. Ralph Tinley. Wm. Jones. Joseph Bentley.

¹ This is the first "Entomological Society of London," see p. 61.

"The above mentioned Society as far as can be collected from their Minute Book did not last longer than the first week in August 1782, but three of the Members are still living [1805], viz. Messrs Honey, Francillon and Jones.—Tinley's Cabinet is now in the possession of Sir Jno. St Auban and contains a few Unique Moths—Bentley's collection was sold by his widow for 50 Guineas to Mr Heaviside the Surgeon: it contained 926 Lepidoptera, in the highest preservation, and was also rich in Coleoptera."

The above is followed in the minute book, referred to above, by some extracts from the "minute book" of the Society of Entomologists of London which deal only with the occurrence and capture of Lepidoptera.

In 1937 the Royal Entomological Society of London was enabled to acquire by purchase a MSS. entitled: "Catalogue of John Francillon's Cabinet of Insects and other Memorandums. A Copy of Articles belonging to an Aurelian Society. A.D. 1780." The "Aurelian Society" referred to is in fact The Society of Entomologists of London, for on page 63 is a "Copy of Articles belonging to an Aurelian Society" and the "Articles" which follow are the same, but for a very few, quite minor, grammatical changes, as those quoted above from Haworth. The list of names given is, however, somewhat longer and comprises: "Dru Drury, President; Willm Honey; John Swift; John Francillon; Ralph Tinley; Willm Jones; Joseph Bentley [sic]; ... Beckworth²; ... Smith; ... Pickersgill."

The "Articles" are followed by the "minutes," which in fact are no more than a weekly calendar of Entomological matters from the first week in May 1780 to the first week in August in 1782.

From its appearance, and an occasional mis-spelling such as "Entomological", the book seems to me to be a "fair copy" made by a contemporary scribe for the use of Francillon. It is a manuscript written in a beautifully clear hand and the book is bound in a full sheepskin binding. The book has obviously been well cared for and shows none of the usual signs of age so often to be found in a book already well over a century and a half old.

It is apparent that the individual members of the Society were much interested in its doings, for still another contemporary record is in existence. In 1933 Sir Edward Poulton exhibited to the Royal Entomological Society of London (Poulton, 1933) a manuscript Diary and rough draft of the Proceedings of the Society and certain manuscript notes all once the property of William Jones, already noted as one of the members, which manuscripts had been presented to the University of Oxford by Dr. F. Dawtrey Drewitt, a descendant of Jones.

The rough draft of the Proceedings records the elections of members; modifications of rules; and weekly lists of insects bred, seen or captured. The "Diary" also contains a copy of the "Articles" already quoted and this is the third copy now known to exist. From Sir Edward's account it is learned that Drury was the President, Honey the Vice-President, Jones the Secretary, Swift the Assistant Secretary. It is also stated that Jones resigned his membership from June 1781 to April 1782, during which time the Society met on Sundays. It is known that Jones was a Swedenborgian and this may account for his action. Jones' decision is given on the authority of Dr. Drewitt, but Sir Edward cannot confirm the day of meeting as being Sunday during the period mentioned and suggested that the "Meetings" referred to were in fact collecting expeditions. From the extracts given by Poulton it appears that in 1781 the following Officers were elected: Drury, President; Tinley, Vice-

² It is probable that this is an error and Beckwith is intended, see p. 53.

President; Swift, Secretary; and Beckwith, Assistant Secretary. These Officers were all re-elected in 1782.

It is stated by Poulton, from the records he is quoting, that in November 1781 the Society decided to remove from its "present Place of Meeting," unfortunately not specified, "to the Bank Eating House in Throgmorton Street." In the following January it was decided that the Society should meet twice a month from March to September inclusive "as usual viz. the Second & Last Tuesdays in the Mo." and from the end of September to the beginning of March only once "viz the Secd. Tuesday in the Month."

As regards the subscription payable by the members, the only information I have found is that it was decided in January 1782 that while the society was meeting only once a month the fine for absence should be one shilling per meeting, and at a later undated meeting in 1782 it was "resolved unanimously that in future this Society do meet only on the second Tuesday in every Month & that one Shilling be then spent by every present Member & the Fine for absence be likewise one Shilling."

It should be remembered that the real value of a shilling in 1780 was considerably more than nowadays and it is probable that the levy of a shilling from every member, whether he be present or not, was required to pay the cost of hiring the meeting room.

The list of members which I have extracted from these records is:—

D. Drury,
Wm. Honey,
John Swift,
John Francillon,
Ralph Tinley,
Wm. Jones,
Joseph Bentley,

John Church, Islington, Surgeon,
Thomas Pickersgill, Wte Lyon Street,
Norton falgate,
John Beckwith, Lant Street, South-
wark,
—Smith.

The disappearance of the Society of Entomologists of London marks the end of the first period in the history of the early Entomological Societies. The first attempts, which are recorded above, were obviously directed by a small band of enthusiastic collectors and it is unlikely that the total membership of any Society much exceeded half a dozen members at a given time. Certainly the day of the big Entomological Society as it is now understood had not yet dawned nor was the dawn in prospect.

What may be considered the second period opened with the commencement of the nineteenth century. It is a period when practically the whole initiative in the association of London Entomologists was due to one man, namely Adrian Hardy Haworth, born 1767, died 1833.

Haworth was a really remarkable man; his entomological work is still consulted and he wrote several important Botanical works. His collection of insects must have been extremely complete for the period and his library equally so. Some of his books were bought after his death and are now in the Library of the Royal Entomological Society of London. He was quite certainly a whole-hearted lover of insects and an idealist who spent much energy and time on the formation of a complete collection of native insects. I think it is probable that his anxious wish to form a really complete collection of British Lepidoptera influenced his attempts at the formation of a successful Entomological Society.

IV. THE [THIRD] AURELIAN SOCIETY [1801-1805].

The fourth attempt at the formation of a Society was that made by Haworth in 1801, which resulted in the [third] AURELIAN SOCIETY, the last Society to use this pretty but now old-fashioned name.

A copy of the minutes of this Society is now in the care of the Royal Entomological Society of London and I give here some details concerning the volume in which it is written.

The volume is an ordinary writing-book such as was used commonly in the early nineteenth century and on the fly-leaf is written : " This book, which was for many years in the possession of Dr John Edward Gray of the British Museum and by him given to Mr Frederick Smith, was presented by the latter to the Entomological Society of London on the 4th day of November 1872.

[signed] Edward W. Janson.

Libn. Entom. Soc. Lond."

In the main the book is in Haworth's handwriting and it contains a copy of the proceedings of the [third] Aurelian Society from July 1801 to January 1805; the minutes of the [first] Entomological Society of London from May 1806 to 1822; a notice of a " Meeting of Gentlemen desirous of promoting the study of Entomology held . . . on June 25. 1822."; and a " List of papers in possession of the Secretary of the Entomological Society of London . . . January 4th. 1809."

The description of J. E. Gray as the Secretary in the list of those present at the meetings from May to July 1822, the last in the book, explains his custody of the volume. Frederick Smith was sometime President of the present Royal Entomological Society of London.

The book opens with some " Preliminary Remarks " stating that it was thought desirable to preface the minutes of the [first] Entomological Society of London with those of the [third] Aurelian Society and so to preserve much valuable information. It continues by stating that the meetings held from 1801 until August 1804 were much less formal than the succeeding ones. Apart from the extract of the minutes quoted on p. 51 relating to the Society of Entomologists of London, the minutes relate almost entirely to the recording of purely entomological information communicated to the meetings by the members and others. The very small balance is concerned with the election of members and similar matters. So much for the copy of the minute book, and now to proceed to the information concerning the Aurelian Society which I have traced.

The first source of information is Haworth (1803) in the dedication of his celebrated *Lepidoptera Britannica* : " To the Gentlemen of the Aurelian Society, who have given up with unexampled zeal, from their respective collections, to the Aurelian Cabinet, every British Insect which that did not possess, the following account of the Lepidoptera of Great Britain is most humbly inscribed, as a testimony of gratitude and esteem, by their greatly obliged and very humble servant A. H. Haworth, Founder and Curator of the Aurelian Cabinet." It may here be remarked that, as will be shown later, the so-called " Aurelian Cabinet " was in fact nothing more than Haworth's private collection and such gifts as were made to it by the members were, at any rate in part, returned to the donors when the Society was re-formed as the [first] Entomological Society of London. To refer again to Haworth's *Lepidoptera Britannica*, in the Preface (page xiii) he said : " Prior to the publication of my *Prodromus* [issued anony-

mously in 1801], I had endeavoured, and nearly succeeded in my endeavour, to establish an *Aurelian Society*; and a standard, permanent, and complete collection of *British Lepidoptera*; under the name of the *Aurelian Cabinet*.

"This collection, containing (with the exception of about seventy species, and a few Tineae,) all the *known British Lepidoptera*, and a very considerable portion of insects in the other orders; it is my intention to give to the *Aurelian Society*, *bonâ fide*, and *without fee or reward*; as soon as it shall amount to twenty living members; to be kept up by them and their successors, for ever hereafter, as a *standard and permanent collection of British insects*: in such manner as I shall elsewhere direct, for the benefit and advantage of this my favourite department of the science of Entomology.

"The Society at present consists of about 10 members only. They are all *collectors of British insects, and possess collections*: and it is by no means unworthy of remark, that they have every one hitherto contributed articles to the *Cabinet*, which could not have been procured from any other source whatever. All these gentlemen have given up, with unexampled zeal, from their respective collections, to the *Aurelian Cabinet*, every [page xiv] *British insect* which that did not contain; thus assembling together the most extensive collection in British Entomology hitherto made.

"The leading objects of the *Aurelian Society* are, *to form a complete and standard cabinet of the Entomological productions of Great Britain*:—*to ascertain their names and distinctions*—'Nomina si nescis, perit et cognitio rerum'—*their times and places of appearance*: *food*: *oeconomy and peculiarities*: *and to point out to the public the readiest and most desirable methods of destroying such as possess properties which are inimical to the welfare of mankind*.

"Having now spoken sufficiently of the institution and views of the above society, I shall beg leave to explain the nature and novelty of the genera and sections into which the genus *Phalaena* of Linnaeus is divided in the present work."

This gives a clear picture of the aims of the [third] *Aurelian Society*, so clearly the product of Haworth's direction, and of his attempt to build up a representative British collection of *Lepidoptera*. It is interesting to note the suggestion of applying entomological knowledge to assist the "welfare of mankind"; nowadays it is unusual for Entomological Societies to be so ambitious. As will be shown later, Haworth's promise was not redeemed since the Society never reached the total membership which he made a condition for the offer of his collection.

Later in the same Preface referred to above (page xviii) Haworth said: "On my mentioning to Mr. Curtis, [William Curtis 1746–1799] some time before his death, my intention of attempting the establishment of a society to collect and explain *all the natural productions of Great Britain*, or at the very least the *entomological ones*, he assured me he had once meditated a similar thing himself, under the appellation of *Musaeolum Britannicum*; and as he had abandoned the idea of pursuing it, he presented me *his collection of British insects*, to encourage me to do so."

Further proof of Haworth's control of the affairs of the Society is to be obtained from the following, which is to be found on page xxxi of the *Lepidoptera Britannica*:

"Terms of becoming a member of the *Aurelian Society*.

"Any person desirous of becoming a Member of this Society, must be approved by every one of the Members for the time being; and if he possesses a collection of British Insects, he must give up from it, to the *Aurelian Cabinet*,

at least one specimen of every species and variety, which the latter does not possess : for which he will immediately receive from the Curator [*i.e.* Haworth] of the Cabinet for the time being, the fullest value in rare insects; or money if he chose to accept it; and afterwards occasional duplicates of scarce Insects, which will continue to be collected, both by purchase and personal industry; to answer the claims of such *Aurelians* as may hereafter wish to have their names enrolled in the annals of the society.

"The above sacrifice of rare or unique species, considering the truly advanced state of the (a) *Aurelian Collection* (the most extensive in British Entomology hitherto made) can seldom be great, and will evidently become less and less.

"By these means the Aurelian Cabinet must ultimately arrive at the standard of perfection; and the separate collection of every Member of the Society will gradually increase both in number and value.

"The Members will have a right of inspecting the Cabinet as often as they please, either for the purpose of pleasure or instruction."

"(a) This Cabinet, and all the British Insects it contains, I here pledge myself to give up to the *Aurelian Society*, bonâ fide, and without fee or reward, as soon as the Society shall amount to 20 living Members, in such manner as I shall then explain. *Vide page xiii. of the Preface.*"

All the above quoted passages were published in Part 1 of Haworth's work which was published in 1803 (Griffin, 1932). The book was completed by the appearance of Part 4 in 1828 (Griffin, 1932) and in this last part Haworth obligingly completed the story of the Society. On page 587 he said: "Postscript. A few observations on some of the earlier pages of the preceding work appear to be requisite: viz. page 13 [*recte* xiii] of the Preface, &c.

"The young Society there mentioned never amounted to twenty living members, and was dissolved in April 1806, on account of the giving up of rare insects, as there stated, to form a general Cabinet, being very much disliked, and motioned against at its meetings. But on its dissolution, a new society was immediately formed of very nearly the same members (requiring no insect to be given up), all the members of the old society withdrawing all, or any of their respective contributions towards one general cabinet, as they pleased."

The minute book already referred to, which it will be remembered was written by Haworth, does not give any information on this matter of the giving up to the Cabinet such insects as the Cabinet did not contain. Haworth's omission is understandable in the circumstances, for he obviously set great store on his ideal of a complete collection. The "Postscript" continues:—

"The new Society was at first called 'The Entomological Society'; and afterwards, 'The Entomological Society of London.' The old cabinet was called 'The Entomological Cabinet': and a small cabinet of British insects, which was soon after given to the new Society by the writer, was called 'The Cabinet of the Entomological Society of London'; but has since received no good arrangement, and scarcely any additions. [For the story of this Cabinet, see p. 67.] The new Society became known by its name of 'The Entomological Society of London'; and published the third and last Part of its Transactions (whose well-meant motto³ was given by the writer) in the year 1812. But, after that period, through the death of some of the members, and the resignation, neglect, or departure from London of others, only held quarterly, yearly, or occasional meetings, until the year 1822; when the

³ Insectorum historiam elaborare.

Society (although reduced to about half a dozen members) rallied, and elected several new ones; who soon after, (joined by most of the old ones,) formed another Society, by the name of 'The Entomological Society of Great Britain,' without dissolving 'The Entomological Society of London,' only adjourning it for one year; but detaching themselves therefrom, by withdrawing their subscriptions. And the Treasurer, who repaid the same, yet holds the very trifling remaining funds of 'The Entomological Society of London,' together with the above-mentioned small cabinet of British Insects, and a few papers belonging thereto.

"The Entomological Society of Great Britain' was also adjourned for one year. And after this, most of the members of both the last-mentioned Societies were joined by various Fellows of 'The Linnean Society of London,' under the shape and name of a Club; and became 'The Zoological Club' of that Society."

In the "History" by Surr (1812) already mentioned, he, having quoted the objects for which the [second] Aurelian Society, "the progenitor of the present [The [first] Entomological Society of London], and which was instituted in the summer of 1801," was established, continued: "The ultimate end of all science, its application to the comfort and convenience of man, was not, as appears above, overlooked by the Aurelian Society. Great industry in collecting was exerted, and great liberality was displayed, by its members, towards forming a Cabinet. As their numbers increased, and their views enlarged, they altered their title to that of the Entomological Society in 1805, and finally in 1806 to that of the Entomological Society of London, embracing the study of Foreign Entomology, but more especially restricting themselves to the Insects of the United Kingdoms: it may safely be said that for industry, its members have been exceeded by few."

For the rest this "History" is little more than an appeal for general support for the *Transactions*, communications being "invited from Entomologists in general"; the Cabinet and the Library; and concluding with the expression of the hope "that the practical Entomologist may find it worth his while to enroll himself amongst its members and supporters."

It is perhaps as well to give here the story of the "History" by Surr mentioned above (p. 51), as I can trace it. In the minute book of the [first] Entomological Society of London, now in the care of the Royal Entomological Society of London, the minutes of a committee meeting held on 10 March 1806 record the recommendation that "this history of the Society be printed as a separate paper for distribution if the same be approved." The paper was read by the President, Haworth, for the Secretary, Surr, at the meeting on 3 December, 1806. For some reason which is not recorded it was apparently unsuitable, or at least unacceptable, to the Society and it was not accepted for publication. It was next read in altered form at the meeting in January 1807. It is probable that it is the paper printed in very abbreviated form as the "Introduction" to Volume 1 of the *Transactions of the* [first] *Entomological Society of London* and which was published with Part 3 of the volume in 1812.

As may be seen, I have deliberately included in some of the above quotations passages which concern more closely the [first] Entomological Society of London, which succeeded the [third] Aurelian Society, than this latter Society. I do this because the relationship between the two Societies is obviously so close that it would be difficult to produce otherwise a connected narrative. It cannot be stressed too often how closely interwoven are these

early Societies, and the activities of their members, and since my object is to endeavour to produce as clear a picture as possible it seems best to adopt the procedure above.

I have extracted from the minute book of the [third] Aurelian Society a list of the members, and whilst I am unable to guarantee that this list is full and complete, it does contain the name of every person mentioned as being a member. The list is printed in the order of the reference to the names in the minute book :—

A. H. Haworth, Little Chelsea
 Revd. J. Burrell,
 W. Skrimshire, Wisbeach
 Revd. T. Skrimshire, Fakenham
 Dr. F. Skrimshire,
 J. Rippon, York
 J. Hatchett,

J. Howard, Kingsland
 T. G. Ingall,
 Revd. Dr. Abbott [also as Abbot],
 P. W. Watson,
 R. Scales, Walworth
 Wm. Anderson, Kensington

The next source of my information is the Syer Cuming collection of papers, described later. In this collection is to be found a document as follows :—

“ Decr. 1802. Proposals for the *Meetings* of the *Aurelian Society*. 1st. *Mr. Haworth* proposes, that as many of the Members of this Society as can make it convenient, shall meet at the hour of 4 o’Clock in the evening, on the first day of every Month, at, for the purposes of *exhibiting & giving applicable English Names*, to such British Insects of the Order *Lepidoptera*, as have at present, either *no settled English appellation*: or such as are uncharacteristic or objectionable.

“ 2d. *That* the Member who first exhibits any species shall have the right of proposing any name he pleases for it; before any other person shall have a right to propose one.

“ 3d. *That* if the person presenting such species shall refuse to offer any name; the President (who shall be chosen by ye Members at their first meeting) shall ask if any other Member or Members have any other name or names to propose for ye same article.

“ 4th. *That* if no name at all is proposed, the President himself shall be obligated to propose one, unless, it shd. be thought advisable to defer the naming of the article to some future meeting.

“ 5th. *That* then the President shall repeat the name or names proposed; with the name or names of their proposer or proposers; before the members assembled, & shall request them to decide by open vote, which is the best; this shall be determined by a majority of their votes; the vote of the President being a casting one, or equal to two votes.

“ 6th. *That* the name which is decreed to be the best and most appropriate, shall be confirmed & established; by entering it in a Book, which shall be called the *Society’s Journal*; and also in the *Catalogue of the Aurelian Collection* & be referred from thence to its proper number in the *Aurelian Cabinet*, (if it is there) which number shall ever afterwards, be considered & held, by all the Members of the *Aurelian Society*; as a *standard & permanent reference for the name it belongs to*.

“ 7th. *That* if any article presented & named as above shall be new to the Aurelian Cabinet; it shall be presented by ye owner of it to that Cabinet;

who shall immediately receive ye thanks of the Society, (by the Declaration of the President,) for so valuable addition to their common stock.

" 8th. *That* the circumstance of the Donation with the name of the Donor; shall be entered in in the Society's Journal Book, accompanied by the time & place of the capture of ye Insect, with its age & *state of Life*, at the time of its caption.

" 9th. *That* every Member who shall furnish an account of the time or place of any rare species being in the *Larva*, *Puppa* or *Imago state*, with any peculiarities appertaining to them; or any of them; shall have the public thanks of ye Society for so doing: and shall have their kind information inserted in the Journal of the Society (which shall be kept by ye President,) except such information is already inserted there from some other source.

" 9th. [sic] *Mr. Haworth* will engage to entertain the Members at any time assembled, (when there shall happen to be no naming, or other business in hand) with Entomological Anecdotes, or with Lectures, which shall be explanatory of *some or other*; and in time of *all* the technical parts used in the Science of Entomology; so as to divest them of their intricacy, & render them perfectly easy, familiar & intelligible, to all the Members. This he will do by exemplifying each part with a suitable reference to ye real corresponding part in real specimens; which he will make it at once his pleasure & his business, to procure for those very purposes."

This document is most interesting and I cannot find that it has been published previously. It is improbable that any such proposals for naming animals would be accepted to-day by any science and given validity outside the immediate circle of the small body of members concerned, but one must not forget that the events now being related concern the period at the turn of the eighteenth century. At that time this country was still an island in the old sense of the word and not by any means strongly influenced by what was happening in Natural Sciences even so near as the continent of Europe. Moreover the proposal was for the giving of "applicable English Names" to such as have "no settled English appellation" or with names which are "uncharacteristic or objectionable." With this comment I give below a quotation from a second manuscript document in the same collection of papers. The manuscript is of six leaves and is undated. In my opinion it is written by Haworth and unless "the foregoing sketch of the History and designs of the Entomological Society of London" be the "Introduction" by Surr already mentioned above (p. 57), I am quite unable to trace its present whereabouts. It is possible that the document is incomplete, for it ends at the foot of page [6] in what seems to me an inconclusive manner; it runs as follows :—

" From the foregoing sketch of the History and designs of the Entomological Society of London, the correctness of the following extract from Dr. Rees' Cyclopaedia may readily be appreciated. It is sufficiently well known to the Members of that Society, from circumstances irrelevant to this place, as well as from the Entomological part of Dr. Rees' work, being avowedly conducted by Mr. Donovan, that the remarks contained in it, are the production of that gentleman or some of his friends. It is to be found under the Article Entomology. [page 2] 'The Aurelians pocket Companion by Moses Harris, is a kind of Alphabetical Catalogue of the larger Butterflies, Sphinges & Moths, collected in England by its author: a tract of no utility to the naturalist, unless he first condescends to become an adept in the Jargon of the Aurelian,

or as now termed the Entomological Society; the Insects being throughout designated by the silly names imposed by the few illiterate parsons associated under this denomination. In this English Lexicon of Entomology we have "The Wale", "The Bank", "The Turnpike gatekeeper", "Ghost", "Old Woman", "Dishclout", and a vast [page 3] number of others equally capricious and replete with absurdity.

"The Aurelians Pocket Companion alluded to in the above extract was published in the year 1775. The Aurelian Society to which it is presumed Mr. Donovan alludes, and which merged with the Entomological Society of London; was instituted during the first years of the present century. Its latter title was taken up in the year 1805.

"The names are most probably to be ascribed to the ordinary collectors long prior to the days of Moses Harris; the Insects are still known by them by the [page 4] titles which Mr. D. derides and they may be obtained of the common collectors ordered by no other names.

"We will now proceed to examine whether they are such fair objects of ridicule as Mr. D. affects to consider them, premising that they most probably, were imposed two or three score years before the present Society had its existence.

"If we consider Butterfly or Moth as generic names 'The Wale' (*Papilio megaera* Linn.) was most probably so named from its disposition [to] bask on the sunny [page 5] side of a wall, or from flying to and fro before it in the sunshine. 'The Bank' is the same Insect but in default of a wall perching on a sunny bank.

"The Gate Keeper, (*Papilio pamphilus* Linn.) called here Turnpike Gatekeeper, and in *Lepidoptera Britannica* Small Heath; would seem to be so designated from its being commonly found playing through and through [the bars of a gate, or through] [Note.—The words in square brackets are struck through in pencil.—F. J. G.] a gateway, appearing to enjoy as it were that particular spot, whether the gate be open or no. It seldom moves more than twenty [page 6] yards on either side, and that for a day together unless frightened away. At any rate it would appear to prefer an open course for its flight and as the highway, will afford the least obstruction to it, in woods, it may be found in such situation, from that circumstance.

"The Large Heath of *Lepidoptera Britannica*, (*Papilio pilosellae* Linn.) has the same habits.

"The Dishclout (*Papilio artemis* Linn.) Greasy Fritillary of *Lepidoptera Britannica*; from its greasy appearance may have had the name of Dishclout amongst the ordinary collectors, but if so it is now discontinued."

The work from which the above extract is made was published in [1809] in volume 13 of the *New Cyclopaedia*. It is a long and interesting chronological account of the published works on Entomology issued in this country, and from the context it is apparent that Donovan was the author, as one may see if reference be made to the passages dealing with Donovan's works. Unfortunately the work carries no pagination, but as I have stated the arrangement is chronological and reference is therefore not too difficult.

Since the time of Haworth, who in his *Lep. Brit.* 1803–28 published English names for the whole of the *Lepidoptera* known to him including the *Micros*, this matter has interested many people, and a few years ago Sir Edward Poulton, F.R.S., Honorary Life President of our Society, was responsible for the publication of a list of those names used in the eighteenth century especially

by William Jones (Poulton & others, 1934) while Heslop (1938) published a list of British Lepidoptera with English names to the Macrolepidoptera.

This concludes the record of the [third] Aurelian Society, the last to bear the old name, and with its metamorphosis into the [first] Entomological Society of London, the Entomological Society as it is at present understood began to take shape. The selection of the name Entomological in preference to Aurelian is evidence of the interest widening from a restricted interest in British Butterflies to matters relating to insects of all orders and countries from wherever they may come. This tendency is amply evidenced by the contents of the *Transactions* of the successor to the [third] Aurelian Society.

V. THE [FIRST] ENTOMOLOGICAL SOCIETY OF LONDON [1805-? 1832].

The fifth attempt at the formation of a Society resulted in THE ENTOMOLOGICAL SOCIETY, later THE [FIRST] ENTOMOLOGICAL SOCIETY OF LONDON formally established in May 1806.

As I have already recorded, this Society was in fact the immediate successor to the [third] Aurelian Society and might even be considered as the same Society with new Bye-Laws and a change of title. The addition of the words "of London" was made in 1806 according to Surr (1812), the original Entomological Society having been established in 1805.

Contemporary documents relating to this Society are more plentiful even than those relating to the earlier Societies and a comparatively full picture of its life and activities is possible.

The two main sources of information available are both original, and comprise the minute book of the Society referred to already (p. 54), and a collection of papers sometime in the possession of H. Syer Cuming and acquired by the Southwark Public Library, by whom they were transferred to the keeping of the Royal Entomological Society of London some years ago. This collection is in a portfolio which opens with a note signed "J. Hatchett" and reading "Papers belonging to the Entomological Society of London." It contains two documents relating to the [third] Aurelian Society already referred to (p. 58); drafts of proceedings of the meetings of the [first] Entomological Society of London from 1806 to 1807; the Treasurer's Lists of Members and notes of their payments for several years between 1806 and 1812; rough notes of the monetary balance in 1807-8, 1808-9, and 1809-10; notes relating to the sale of the Society's *Transactions*; bills for the production of the *Transactions*; receipts for the hire of the meeting room from 1810 to 1812; and three manuscripts as follows: "Continuation of a Catalogue of Hemiptera found in Norfolk. By Revd. J. Burrell No. 10.", this is addressed to Haworth and bears a postmark dated 30 April, 1808; a manuscript entitled: "Recd. Mr. Burrell's Continuation of his Catalogue of Norfolk Insects. Lepidoptera. No. 11. Read November 1, 1808."; and a manuscript entitled: "Description of a few insects presented to Entomological Cabinet by Revd. J. Burrell in July 1809. Read July 4, 1809.", and marked "non imprimatur".

The first meeting recorded in the minute book is dated 6 May 1806 and was held at the Black Horse, Coventry Street, Haymarket. Earlier meetings, probably of an informal character, had obviously taken place, for the minutes open by saying: "1. The Society's Bye Laws were read, scrutinized, and approved.—They were ordered to be engrossed and to be ready for signatures, at the Meeting ensuing."

The minutes go on to state that "During the signing [of the Society's Bye-

Laws engrossed on parchment], a discussion took place on the propriety of leaving blank places for admitting the signatures of such of the Members of the late Society [the [third] Aurelian Society], as should hereafter be elected, in the order in which they originally stood. Resolved, that such compliment of preference be paid, to the original institutors, of this Society, and that blanks be left accordingly."

It has already been remarked that the main reason for the dissolution of the [third] Aurelian Society and the establishment of the [first] Entomological Society was dissatisfaction with the rule which required members to give up to the Cabinet of the Society [in fact Haworth's collection] a specimen of any species which that Cabinet did not contain and which was to be found in their collections. It is therefore not surprising that the minutes of the first meetings of the new Society record that various members had exercised their right to re-claim the specimens they had handed over to the general collection.

I have searched the minute book of the [first] Entomological Society of London, and the other original sources, and as a result I am able to give a List of Members of the Society from its inception until it became quiescent and finally ceased to exist. To most names I have added the date of election and it must be understood that those names with no such date are presumed to be original members.

The minutes end with those of the meeting held on 9 July 1822, which conclude: "The meeting adjourned to the first Tuesday in May 1823."

Absolam, Philip, 3.ii.1807
 Adams, Joseph, 3.ii.1807
 Atkinson, John, 6.xii.1808
 Ashby, Edward, 1.xi.1810
 Bennett, Edward Turner, 2.iv.1822
 Blunt, Edward, 2.iv.1822
 Booth, Thomas Swift, 28.v.1822
 Burrell, John
 Cuming, Richard
 Cusack, Christopher, 2.iv.1822
 Dale, James Charles, 25.vi.1822
 Dawson, Samuel Taylor, 1.xii.1807
 Dixon, Frederick, 11.vi.1822
 Easingwood, Matthew, 3.ii.1807
 Fenton, Ibbettson, -.ix.1806
 Gray, John Edward, 2.ix.1822
 Hatchett, John
 Hatchett, John, junr., 9.x.1818
 Haworth, Adrian Hardy
 Henslow, John Stevens, 9.vii.1822
 Hooker, Joseph
 Hope, Frederick William, 2.iv.1822
 Howard, John
 Ingall, Thomas George

Ingall, Thomas, 2.iv.1822
 Leach, William Elford, 6.xii.1808
 Neale, Edward Pote, 14.iii.1822
 Neale, John Preston, -.vi.1806
 Pears, Charles, 6.x.1807
 Pittard, John, -.vi.1806
 Salisbury, William, 1.ix.1807
 Salter, Philip, 5.ii.1811
 Samouelle, George, 2.iv.1822
 Savage, James, 5.viii.1806
 Savage, William, 5.viii.1806
 Scales, John, 9.x.1818
 Scales, Robert
 Simpson, W. R., 4.xi.1806
 Skrimshire, Thomas
 Skrimshire, William
 Stephens, James Francis, 11.vi.1822
 Stone, W., 28.v.1822
 Sowerby, George Brettingham,
 7.iv.1807
 Surr, James, -.vi.1806
 Vigors, Nicholas Aylward, 2.iv.1822
 Watson, P. W.
 Webster, Thomas, 5.ix.1809
 Wilkin, Samuel, 1.ix.1807

A grand total of 48 members.

The following Officers were elected at the first meeting on 6 May 1806 :—

President : A. H. Haworth.

Vice-President : R. Scales.

Treasurer : T. G. Ingall.

It will be observed that no Secretary was appointed, but this omission was repaired at the next meeting, when J. Surr was elected a member and appointed Secretary.

In 1807 and in 1808 the Officers were elected without change, the first change being in 1809, when Hatchett was elected Vice-President but later declined to accept office. In 1810 the existing Officers were confirmed in their offices and the next election was deferred from the usual month of May until 5 November, when the following elections were made :

President : A. H. Haworth.

Vice-President : I. Fenton.

Treasurer : T. G. Ingall.

Secretary : E. Ashby.

The next year Surr replaced Fenton as Vice-President but no other change was made. In 1813 the only change was the election of Neale to the Secretaryship. In 1814 no change was made and no further election was held until 23 May 1817, when it was recorded that “. . . The Officers elected for the year 1815, be considered as having held their offices from that time to the present, and that they still continue, to hold their seats.” The death of Ingall the Treasurer was, however, recorded at the same meeting and accordingly a new Treasurer was elected, the choice falling on Hatchett.

In June 1819 it was resolved “ That the Officers of the preceding year be continued in their offices for the present,” and a similar resolution was adopted on 9 October 1821.

The next election occurred on 7 May 1822 with the following result :—

President : A. H. Haworth.

Treasurer : J. Hatchett.

Secretary : J. E. Gray.

the office of Vice-President being left vacant “ untill the Society should become more numerous.” This is the last recorded information as to those responsible for the direction of the Society's affairs and the Society appears to have become dormant soon after this meeting.

This Society was the first to attempt the publication of a periodical devoted to Entomology. The first mention of the publication of *Transactions* was at the meeting on 4 November 1806 when a Committee was nominated “. . . to examine the Society's papers and to report their opinion on the same at the next meeting, declaring which of them they deem proper for the Society to print.” The Committee consisted of Haworth, Scales, Surr, J. Savage, and W. Savage. They reported to the next meeting as follows :—

“ Your Committee are of opinion, that it will be advisable to publish Communications under the Title of ‘ The Journals of The Entomological Society of London ’—that they be printed in octavo in the same sized type and paper as ‘ Anderson's Recreations ’—that they be published in numbers, as often as

the Society may deem it expedient; and with occasional plates when the subject shall be thought of sufficient importance.

"After examining the papers already in the possession of the Society, your Committee recommend that the President's 'History of British Entomology', be the first in order and followed by that of Mr. Thos. Skrimshire on rearing insects (read Sept. 1805) and the Rev. Jno. Burrell's Description of *Lygaeus micropterus* read Sept. 1806—and that these form the first Number of the said Journal.

"Your Committee are of the opinion that the History of the Entomological Society promised by Mr. Surr, and referred to by Mr. Haworth in his History of Entomology, will form a proper Introduction to the Journals, and recommend that this History of the Society be printed as a separate paper for distribution if the same be approved.⁴

"Your Committee are likewise of opinion that it would be advisable to adopt the Resolution of the Royal Society, in reference to the Contents of any papers they may publish, the import of which is, that the Society pledges itself to nothing advanced in any Communications published in the Journals.

"Your Committee strongly recommend that no anonymus [sic] paper whatever be permitted to have place in the Society's Journals.

(Signed) A. H. Haworth."

The report was presented but consideration was deferred until "Mr. W. Savage offered to obviate all objections on account of the funds, to take on himself the expense and risk of printing the Journals," and it was "Resolved: that the thanks of this Society, be presented Mr. W. Savage for his offer." I cannot trace any further reference to this offer and it seems likely that it was not accepted.

In February 1807 it was suggested that a committee be set up to consider revising the rules of the Society and in March the following were nominated a Committee to revise the Bye-Laws: Hatchett, Ingall, Howard, Neale, and J. Savage. This action seems to indicate that the original Bye-Laws gave no authority for the publication of a Journal.

The report of this Committee was promptly produced but suffered a long delay from the action of Savage, who offered "to copy [the report], in a manner fit to be presented to the Society", so that the Committee were compelled to add a note as follows: "Your Committee, under the Idea, that printing the Transactions of the Society may experience further delay, by their unfortunately being disappointed of making their expected Report upon the present Rules—Recommend that the opinion of the late Committee upon the printing the papers therein mentioned, be immediately carried into effect."

This was reported to the meeting on 21 April 1807 and detailed consideration was given to it at the three following meetings, when it was adopted. On 5 May 1807 it was resolved: "That a Committee be appointed to examine such communications & papers as are in possession of the Society for the purpose of publication. On a Ballot the following persons were elected, viz. Mr. Hatchett, Mr. Haworth, Mr. T. G. Ingall, Mr. Neale, Mr. Pittard, Mr. W. Savage, Mr. Scales, Mr. Surr three of whom shall be competent to act."

At their first meeting on 5 May 1807 the Committee adopted several resolutions and accepted certain papers for publication in the *Transactions*. They decided that the *Transactions* should be printed in a small pica type in octavo; that Mr. W. Savage be employed to print the *Transactions*; and that

⁴ For the story of this "History," see p. 57.

the first part should be published on 1 June 1807. This early date, which left less than one month for the editing of the part, could obviously not be kept and at the meeting on 2 June it was decided that the *Transactions* should be published by Mr. White, Mr. Murray and Mr. H. D. Symmonds; that part 1 should appear on 1 July; that it be priced five shillings; and that it be accompanied by four copper plates. Mr. Neale presented the drawings and engravings of three of these plates and Haworth the drawing and engraving of the fourth. The next mention, apart from recording the Society's thanks for the drawings, was the receipt of the bill for printing in October. This amounted to £24 8s. 4d

In June 1808 a Committee was again set up to report which papers "are proper to be printed as the second Number of the Society's Transactions." The Committee consisted of Surr, Scales, Hatchett, Fenton and Haworth, but Surr retired from reasons of health and was replaced by Easingwood. In July they recommended papers for inclusion in part 2 "provided that said papers do not all together exceed four sheets of letterpress."

In due course this was accepted and it was agreed to add two plates to the four sheets of letterpress, but in December 1808 a number of donations were announced which permitted an increase to seven sheets. The donations were :—

Mr. Hatchett 2 engraved plates
 Rev. Mr. Burrell 1 sheet of letterpress
 Mr. W. Savage 1 sheet of letterpress
 Mr. G. B. Sowerby 1 copper plate and one guinea
 Mr. J. P. Neale half-a-guinea
 Mr. Surr half-a-guinea
 Mr. Easingwood half-a-guinea
 Mr. T. G. Ingall half-a-guinea.

To this list the following were added in January 1809 :—

Rev. Mr. Burrell 1 additional sheet of letterpress
 Mr. Haworth 1 sheet of letterpress
 Mr. Leach 1 engraved plate
 Mr. Fenton one guinea

Consideration was next given to the price of part 2 and in February this was fixed at half-a-guinea but subsequently the decision was ruled to be *ultra vires* because insufficient notice of the motion had been given and on reconsideration it was agreed that the price be seven shillings and sixpence.

From various references in the minute book it seems clear that the members of the Society were very jealous of their rights under the Bye-Laws, and on several occasions attention was drawn to decisions said not to be in harmony with them. One such was in connection with the publication of part 2 of the *Transactions* and on 2 May 1809 a "Report of the Printing Committee" was made as follows :—

"Your Committee reports, that it took into consideration, the second part of the Transactions of the Society, according to the reference made to it, and referred to the Report of the Printing Committee of July 5th 1808 and the Minutes of the Society since that period and finds that Mr. Hatchett's paper on 'Some rare British Moths', Mr. Sowerby's 'Account of a new Scarabaeus and observations on two other rare insects', Mr. Leach's 'Account of two species of

Clytra' and the 'Extracts from the Minutes' have not been ordered to be printed conformably to the Bye Laws, although they have been read before the Society. And the Committee recommend to the Society in future, not to order any Article to be printed in its Transactions, but what have been regularly referred to a Committee, according to the Bye Laws of the Society; and all communications ordered for publication should be printed according to the dates on which they have been read before the Society.

(Signed) Wm. Savage (Chairman)
J. Hatchett
J. P. Neale
J. Fenton
G. B. Sowerby
S. T. Dawson."

In order to regularise what apparently was an irregular position under the Bye-Laws it was "Ordered that the second part of the Society's Transactions, be forthwith published."

The next reference to the *Transactions* was in April 1811, when a Committee was again set up. This time it was to "consider the expediency of proceeding to print another, being the third part of, and completing Volume the first, of the Society's Transactions." The Meeting turned itself into the Committee and immediately produced a Report that it was better to defer the matter. On 7 November 1811 they reported as follows:—

"Your Committee recommend that the third part, concluding the first Volume of the Society's Transactions be printed immediately; and that the following Papers do constitute the same." The list is then given. It was further decided to accept a plate offered by Neale and one by Hatchett and that Mr. Taylor should print the part.

At the September 1812 meeting it was resolved that "the whole of Part III of the printed Transactions reserving fifty copies, be placed in the hands of Mr. Underwood . . ." further that the price of the part be five shillings and sixpence and that it be published forthwith. At the same time it was decided to give the Binder directions to cancel the title-page and table of contents to part I already issued.

In 1813 Mr. Thomas Underwood of 32 Fleet Street and 40 Smithfield was appointed "sole publisher" of the *Transactions*. From the minutes of the meeting in February 1813 it seems that the number of the edition was 250 copies, since it is recorded that the Vice-President had received 50 copies in quires and Mr. Underwood had received 200 copies. The bill for printing this third part was considered in November 1813; it amounted to £22 13s. 0d. for the 250 copies, and it was ordered that £15 be paid on account. The balance was ordered to be paid at the meeting in June 1817. Obviously the Society was not wealthy! On 11 June 1822 it was reported that the Treasurer held 103 copies of part 1, 135 of part 2, and 50 of part 3. No further information concerning the *Transactions* is to be found in the minute book.

I cannot trace that the [first] Entomological Society of London attempted the formation of a Library but they obviously formed a "Cabinet" of insects, for the most frequent entry in the minutes is a "report on the state of the Cabinet with a list of additions." From the minute of 1 May 1810, and of February 1811, however, it is apparent that the Cabinet referred to up to that date was in fact the private collection of Haworth, the President. It reads:

"The President having offered a collection of British Insects as a gift to the Society, containing about 2000 species, Resolved unanimously: That this liberal offer be accepted, and that the thanks of this Society be presented the President for his valuable gift." In November 1810 the receipt of the collection was recorded and the President thanked. In February 1811 the following resolutions were adopted: "That the thanks of the Society be presented the President for the valuable information, from time to time, communicated to this Society, respecting the progress of his private collection of Insects heretofore known by the name of the Entomological Cabinet. The Society being now in possession of a Cabinet resolved that the said Cabinet be called 'The Cabinet of the Entomological Society of London. Resolved that future reports respecting the progress of the Cabinet be understood to refer exclusively to the said Society's Cabinet.' From that time relatively few additions were recorded and the subsequent history of the Collection is not known to me. As stated on p. 56, it is clear that no satisfactory arrangements were made for the care of the collection and it is probable that the neglect complained of by Haworth (1828) was real in fact.

The first meetings of the Society were held at the "Black Horse," Coventry Street, until April 1807, when one meeting was held at the "Crown," Stationer's Court, Ludgate Street. The next move was to 35, West Smithfield, followed by a meeting at the house of Savage at 28, Bedfordbury. In June 1807 the Society moved its place of meeting to the Russell Coffee House, Covent Garden, where it continued to meet till September 1812. From November 1812 it met at Surr's house, 53, Aldersgate Street, until June 1818. At this time there is a break in the minutes which continues until the meeting in October 1818 held in Neale's house in Bennett Street, Blackfriars, where they continued to be held till April 1822. The next two meetings were held at the house of J. E. Gray at 10, Hatton Garden, and the last three recorded meetings took place in June and July 1822 in the Anatomical Theatre at 87, Hatton Garden, belonging to Mr. J. E. Taunton, Surgeon, and Mr. Cusack, Professor of Anatomy and Surgery.

For the use of the room at the Russell Coffee House a fee of half-a-guinea per month was charged and many of the receipts for payment are still preserved in the Syer Cuming collection of papers.

The subscription to the Society was, as far as my information goes, originally ten shillings, being raised in March 1808 to one guinea. In addition to the subscription it seems that a fee of one shilling per meeting was charged whether a member was present or not. As might well be expected this arrangement did not work satisfactorily and the principle was eventually given up and all outstanding arrears written off. The sum was relatively not inconsiderable.

This then is the story of the first Entomological Society of London as far as I am able to trace it. It may be seen that a last attempt to revive it was made in 1822, when several new members were elected. Attention is drawn to these men, for several of them were later to play an active part in the establishment of the present Royal Entomological Society of London. For one reason or another the effort was fruitless. The time for specialisation was not yet; no doubt the times were restless, for the Napoleonic wars were raging in Europe and this country then, as now, was deeply involved. The dominating personality of Haworth was perhaps declining, or had the challenge to his leadership begun?

I may conclude with the quotation of a small, somewhat dirty, scrap of paper on which is written, I believe in the writing of Gray, "Entomological Society Cabinet. To Balance in Hand £2 = 17 = 3. Decr. 1832. I hold this Balance in hand when it is settled who takes the Cabinet I think must receive it but take a receipt. Mr. Haworth must get settled think he will be the right Person to take it." I am unable to discover who took the balance but the slip is now in the Syer Cuming papers in the keeping of the Royal Entomological Society of London.

VI. THE NORWICH ENTOMOLOGICAL SOCIETY [c. 1810].

In the meantime the Norwich Entomological Society was established. Of this Society I have traced no further information than is given by Westwood (1864). Apparently the Society flourished in 1810, the 3rd meeting being held on 4 December 1810, when papers were read by Mr. Curtis and Mr. Wilkin. From the MSS. page of the Proceedings exhibited by Prof. Westwood to the present Royal Entomological Society of London it is evident that Rev. W. Kirby was elected a member. How long the Society persisted is not recorded.

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ON THE MECHANISM OF COPULATION IN *NEMATUS RIBESII* (SCOP.) (HYM.)

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Communicated by Dr. A. D. IMMS, F.R.S., F.R.E.S.

INTRODUCTION.

THE present study was undertaken in the hope of finding out the functions of the structures concerned in copulation, for the value of a character can be properly rated only if its function in the life-cycle of the species is understood. Useful accounts on copulation in various insects have been given by Berlese (1909), Weber (1933), and recently Wigglesworth (1939) has briefly reviewed the problem. Little previous work, however, has been done on the order Hymenoptera. Many investigators have studied mating in the honey bee, and as this insect mates in the air conclusions are drawn from indirect evidence. Besides, the penis of the bee is a highly modified organ with its different parts having different functions. Most authors have, therefore, laid importance on the rôle of the penis and neglected the functions of the claspers. Rohwer in 1915 published a brief account of the mating habits of some sawflies. He stated that the outer claspers have a gripping function, but he failed to record the functions of the penis and the inner claspers. Whereas clasping had been shown by Wheeler (1913), Rohwer (1915) and Donisthorpe (1927) to be the function of the outer claspers, it had been only indirectly inferred as the function of the inner claspers (Wheeler, Donisthorpe). Very recently Peck (1937) working with *Angitia fenestralis* and Clausen (1938) with the ant, attribute a clasping function to both the pairs of claspers. Finally the mechanism of the migration of the sperms from the bursa or the vagina to the spermatheca is uncertain. The present study attempts to clarify some of these uncertainties.

MATERIAL AND METHODS.

The specimens under investigation were reared in large jars in the laboratory during the summer months. Chloroform and ether were used for killing the insects while in the act of copulation. Musculature was studied mainly from dissections of fresh specimens. Sections were stained in Heidenhain's iron-haematoxylin and counterstained in orange G; and also in Delafield's haematoxylin and counterstained in eosin.

THE PROCESS OF COPULATION.

The genitalia of the adult become inverted shortly after emergence turning through an angle of 180°, and the inversion may be from the right to the left or vice versa. The copulatory organ alone is inverted and, therefore, its component parts do not suffer torsion. The process involves a twist in the muscles connecting it to the hypandrium (ninth sternum). The apophyses of the hypandrium acts as a pivot in the process. The internal reproductive organs, especially the accessory glands, seminal vesicles and the vasa deferentia, become twisted, while the testes are retained in position by the gut above which they are attached to each other along their median margin. Inversion of the genitalia always precedes pairing. The male exhibits interest in the

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female by the vibration of the antennae and the wings. Mating takes place end to end with the two individuals facing opposite directions. When the male is a few centimetres from the female his wing movements become very rapid and he shunts backwards with his copulatory apparatus spread open. During this time the female remains ready to receive him. Over a dozen specimens were killed in copulation and they all showed very clearly the following condition (fig. 1). The subgenital plate (seventh sternum) of the female is gripped by the outer claspers from the outside, while the inner claspers press against it from the inside, thus serving an antagonistic function to the outer. The penis is inserted deep into the vagina and its valves open wide apart while its tip lies well under the spermathecal opening into the vagina. This is clearly shown in dissections of specimens in copulation and also from serial sections of the insects fixed in copulation (fig. 2, A, B). The sperms (*s*) are ejaculated in a mass into the vagina (*v*) along with the secretion (*agf*) from the male accessory gland (fig. 2, B). That this secretion came from the male accessory gland was confirmed by sectioning females which had not mated. In them it

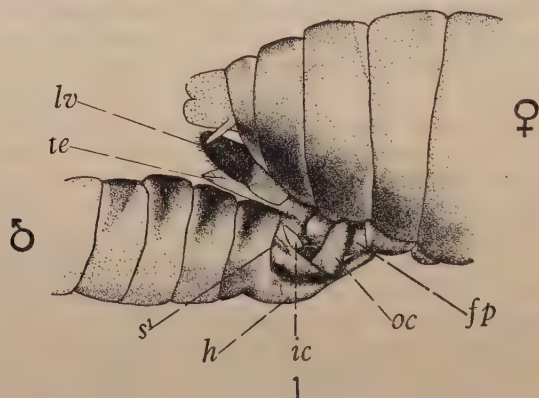


FIG. 1.—The insects in copulation. Lateral view.

fp = subgenital plate (7th sternum of female); *h* = hypandrium (9th sternum of male); *ic* = inner clasper; *lv* = lateral valve; *oc* = outer clasper; *s'* = socci; *te* = terebra.

was absent. A female fixed half an hour after mating showed that the sperms (*s*) travel up to the spermatheca (*sp*), and that only the free sperms reach it, while those that are held in bundles are still in the vagina (fig. 2, C). A fertilised female sectioned six hours after copulation showed that all sperms had entered the spermatheca, none being left in the vagina, and the secretion from the male accessory gland was absorbed. The spermatheca, in the newly emerged female, is a circular structure lined internally with a thick cuticular layer. Its inner ventral wall shows a collection of cells like that of a gland (fig. 4, A). The spermatheca of the female, which was sectioned six hours after fertilisation, shows this glandular region spread out into short villi-like structures pointing internally, like the opening of a flower-bud (fig. 4, B). The duct, as well as the inner wall of the spermatheca, appears muscular. The individuals remain motionless during pairing, which lasts on an average 45 seconds. After the act the individuals "dress" their genitalia with their hind legs. The male becomes sluggish and does not accept another female immediately but, an hour or so later, the same male was seen to mate with another unfertilised female. I have observed a male mating with six different females. When a male came

across a fertilised female he vibrated his antennae and soon found out that the female was fertilised and showed no further interest in her. This was confirmed by keeping males separate in order to starve them sexually. When such males were offered fertilised females, they refused to mate, but when offered unfertilised ones they mated readily. It therefore appears that the females mate only once in their lifetime.

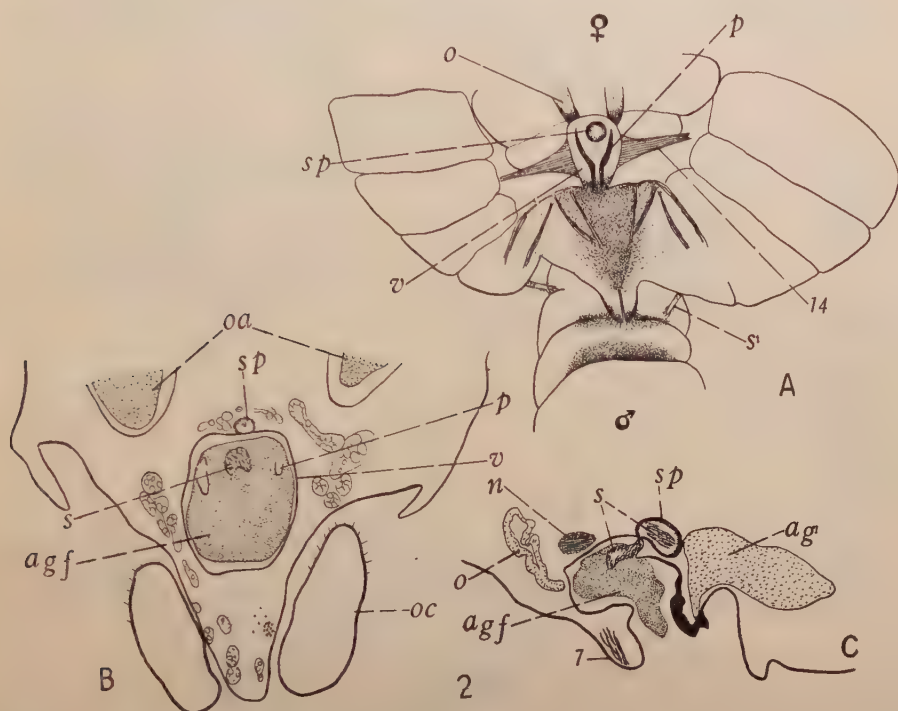


FIG. 2.—A. Dissection of the insects in copulation to show the position of the penis inside the vagina (dorsal view).
B. T.S. of a pair in copulation.
C. L.S. of a female half-hour after mating to show the migration of the sperms into the spermatheca.

agf = secretion from the male accessory gland; *ag'* = female accessory gland; *n* = nerve ganglion; *o* = oviduct; *oa* = ova; *oc* = outer clasper; *p* = penis; *s* = sperm; *s'* = socci; *sp* = spermatheca; *v* = vagina; 7 = seventh sternum of female; 14 = muscle.

EGG LAYING.

For this purpose, freshly emerged females were placed along with the leaves of the host-plant in a tube. The process was observed under a binocular microscope. Once the female starts the process, she becomes so absorbed in her work that the tube can be tilted in any direction without disturbing her. She first seeks a suitable spot along one of the veins, generally on the underside of the leaf, then flexes her abdomen which brings the terebrae at right angles to the leaf surface. The saws then begin to move alternately, making a path for the terebrae into the leaf tissue. When they have excavated a small pocket, their movements cease. A short interval follows and then one observes heaving

movements in the abdomen above the ovipositor. Soon an egg is seen to come in between the saws, and the movements of the saws are resumed. The egg descends into the pocket with its narrower end facing it. At this time the rôle of the saws is over. Their sheath, which serves not only to lower the egg to the leaf surface, but also cuts along its course a narrow incision, is then gradually

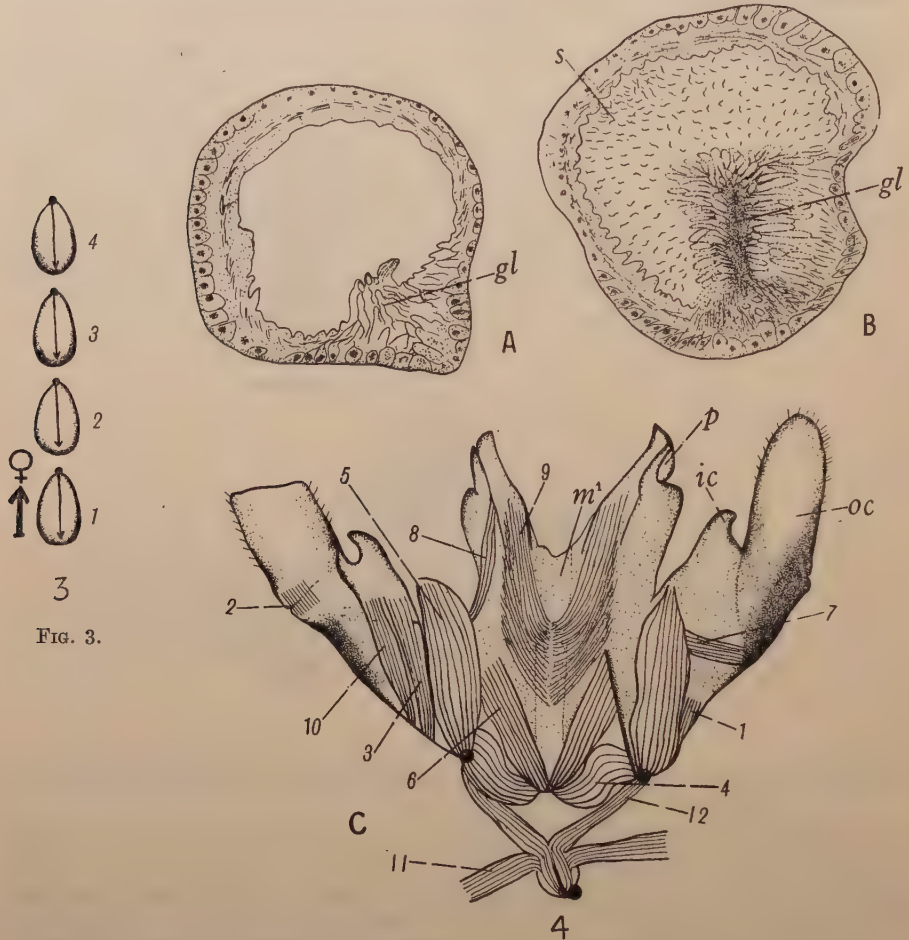


FIG. 3.

FIG. 4.—A. T.S. of the spermatheca to show the glandular structure of a newly emerged female.

B. T.S. of the spermatheca to show the active glandular structure of a female six hours after fertilisation.

C. The musculature of the male genitalia.

1-12 = muscles of male genitalia; *gl* = glandular structure in the spermatheca; *ic* = inner clasper; *m'* = membrane attaching the two penes; *oc* = outer clasper; *p* = penis.

drawn back. The fly then withdraws its ovipositor and walks one step forward and lays another egg exactly in the same manner. Fig. 3 shows diagrammatically the entire process. Four eggs are shown marked 1-4. The direction of the insect is indicated by an arrow on the left of the figure. The cavity which is excavated by the saw is represented by a big dot on the narrower part of each

egg, and the vertical arrow directed backwards in the centre of each egg represents the incision made by the sheath as it is drawn back. If the leaf is left to wither the egg dies.

MUSCULATURE—OVIPOSITOR.

Observations by Keir (1936) on the musculature of the ovipositor of the sawfly *Thrinax* are in complete agreement with my observations on *Nematus* (for illustration and description of the muscles *vide* Keir).

Male (fig. 4, C).

Snodgrass (1935) gave diagrams of the male genitalia of *Pteronidea* (*Nematus*) *ribesii* figuring most of the associated muscles, but with no accompanying description.

No. 1. *Retractor of Outer Clasper.*

From the dorsal basal part of the outer clasper to the apical part of the same.

No. 2. *Flexor of Outer Clasper.*

This muscle is composed of a few scattered fibres which connect the apical and basal parts of the outer clasper at their junction and is responsible for their grip in the process of mating.

No. 4.

This is a thick spindle-shaped muscle with one end attached to the apodeme of the penis and the other to the ventral median wall of the outer claspers at the insertion of muscle 6. This muscle is probably the retractor of the penis.

No. 5. *Protractor of the penis.*

The thickest muscle of the genitalia, it is spindle-shaped with one end attached to the dorsal median wall of the outer clasper and the other to the apodeme of the penis.

No. 6. *Retractor of the penis.*

From the lateral plate of the penis to the median ventral wall of the outer clasper near the insertion of muscle 4. It is a long muscle of a fair thickness which is situated ventral to muscle 4.

No. 7.

From the inner side of the lateral plate of the penis posterior to the attachment of muscle 6 and anterior to muscle 8, to the lateral wall of the outer clasper. This is a slender muscle situated ventral to muscle 5 and is probably the opener of the penis.

No. 8.

From the outer side of the apical tip of the lateral plate of the penis to the outer clasper. This muscle is composed of a few fibres and is situated above muscles 3 and 10 but ventral to muscle 5 and is inserted on the basal lateral wall of the outer clasper. It may also help muscle 7 in opening the penis.

No. 9.

This is a flat muscle from the lateral plate of the penis to the anterior membranous wall of the penis in the median line. A few of its fibres are also inserted on the ejaculatory duct. Its function may be twofold. The primary one may be to close the penis and thus be antagonistic to muscles 7 and 8. It may also serve to expand the ejaculatory duct and be antagonistic to the circular muscles present in it. The counterpart of this muscle is not described by Snodgrass (1935) or Boulangé (1924).

Nos. 3 and 10. *Flexors of Inner Claspers.*

From the apical part of the inner clasper to the basal lateral wall of the outer clasper. Snodgrass figures only one of these muscles (probably muscle 3), but Boulangé finds both in the form studied by him and states that one of them is antagonistic to the other. The attachments of these two muscles in *Nematus* are similar and so their functions must necessarily be the same. Muscle 3 is thicker than muscle 10 and partly overlaps it. Perhaps this fact led Snodgrass to figure only one of them.

No. 11 (a of Boulangé, 1924).

From the pregenital apophyses of the hypandrium (IX sternum) to the lateral wall of the hypandrium. This muscle appears to be antagonistic to muscle 12.

No. 12 (b of Boulangé).

From the pregenital apophyses of the hypandrium to the lateral wall of the basal ring.

Nos. 11 and 12 are alone involved in torsion.

Boulangé described a third pair of muscles in this connection in the forms studied by him, which he designates c. His muscle c is absent in *Nematus*.

DISCUSSION.

“Torsion.”

It is an interesting fact that in the adults of some insects the male copulatory apparatus alone or the copulatory apparatus and the last few segments are present in an asymmetrical condition. Christophers and Edwards (*vide* Lamb) have noted in Diptera, and Boulangé has noted in the Sawflies, that the asymmetry is brought about soon after emergence—a fact which is in complete agreement with my observations on *Nematus*. Recently Richards recorded that in *Calliphora* the twisting occurs at a very early pupal stage. It is probable that further investigations will reveal more such cases. Boulangé noted in the Sawflies studied by him that the inversion may take place in either direction. My observations on *Nematus* confirm this.

Copulation.

The attitude taken by insects before pairing has been designated the “Pose” by Lamb. When they meet tail to tail it is known as “Linear Pose” (L.P.), as distinguished from the “Vertical Pose” (V.P.) where one individual is on the back of the other. In the Linear Pose the dorsal surface of the male tube comes in contact with the dorsal surface of the female vagina. This condition is known as “Direct Correlation.” When the male and the female tubes come in contact so that the dorsal surface of one touches the ventral surface of the

other it is known as "Inverse Correlation." From the available data Richards (1927) has shown that in the insects "Inverse Correlation is the general rule."

The attitude adopted by the pair in later stages of copulation is known as the "position," and it is found that in many insects, when once the union has been effected, the male alters his attitude (Richards : 334).

In *Nematus* it has been seen that copulation is preceded by the inversion of the genitalia. Such a condition is also found in some of the Tipulids and Ptychoptera (*vide* Richards), and Boulangé found it to occur in the recorded cases of Sawflies with an inverted genitalia.

There is thus maintained in *N. ribesii* an "Inverse Correlation" with a "Linear Pose." This has been designated the "False Linear Pose" by Richards.

It may be said from all that is known at present that the primitive pose in insects is probably the "Vertical" one. If one considers the subject from an evolutionary point of view the next condition would be when the pair, having started with a "Vertical Pose," adopt a temporary False Linear Pose. This condition is definitely only temporary because the twist the genitalia undergo is only for the copulatory act, returning to normal again after the completion of copulation. This is seen in Trichoptera and many other forms (Richards) and recently has been shown to occur in the cockroach, *Blatta orientalis*, by Qadri (1938). The next stage would be when this condition has been so engrained that before the act of pairing torsion occurred. This condition is represented by the Sawflies, Tipulids and Ptychoptera where the individuals mate end to end in order to maintain "Inverse Correlation." In *N. ribesii* it is seen that the musculature of the outer claspers has been so adapted that their basal and apical parts can bend only in an outward direction. Thus in order to grip the subgenital plate of the female from the outside, which is the most suitable arrangement for a firm hold, they must be in an inverted condition. In this condition the "Vertical Pose" has been discarded and "Inverse Correlation" is still maintained due to the inverted genitalia. The case of *N. ribesii*, where the claspers are very well adapted to perform their function, permits the suggestion that in those insects where False Linear Pose occurs, due to the inverted genitalia, the clasping organs of the males must necessarily be well adapted to the function they have to perform. Finally the Diptera and Coleoptera have reverted to the "Vertical Pose," this being probably due to a want of proper gripping structures in the genitalia. As mentioned before, torsion occurs in them shortly after emergence, or, as Richards has noted in *Calliphora*, it is present in the pupal instar. If such forms mated in a "Vertical Pose" they would adopt "Direct correlation," and this would be contrary to the general rule. In order that "Inverse Correlation" be maintained, the genitalia must necessarily turn in a reverse direction (Detorsion) or be given a further twist in the same direction. The latter alternative is adopted for the simple reason that the musculature, which is already in a twisted condition, offers difficulty for detorsion.

The second question which arises is the manner of migration of the sperms into the spermatheca. Two opinions have been expressed so far. The first, upheld by Adam (1912) and others, states that in the honey-bee it is brought about by a mechanical action on the part of the spermathecal duct which has a muscular arrangement acting as a suction pump. According to the second view the migrations of the sperms is brought about in response to chemical stimuli. Michael (1923) in the silk moth (*Bombyx mori*) found that there is a negative chemotactic substance secreted by the spermatophore cover which, being disagreeable to the sperms, drives them away from it and hence they get into the spermatheca. According to Ritterhaus (1927) there is a positive

chemotactic substance which probably comes from the receptacular glands. Heberdey (1931) rejected the mechanical theory on the ground that if there is a mechanical cause a few sperms should be found in the vagina—which has not been recorded. Furthermore if the source of stimulus came from the receptacular glands, then the sperms must migrate into it—a condition not recorded so far. Finally there are some forms which do not have receptacular glands. The above arguments led Heberdey to assume that there is a positive chemotactic substance secreted by the wall of the spermatheca which is responsible for the migration. The peristaltic contraction of the vaginal and spermathecal walls probably play an auxiliary rôle. Recent observations by Omura (1938) on the silk moth *Bombyx mori* show the presence of no chemical substance. As far as *Nematus* is concerned, the glandular structure inside the spermatheca appears to be a feeding organ, because it shows over activity after the sperms have entered the spermatheca. Furthermore, the receptacular glands which are considered to provide nourishment for the sperms (*vide* Wigglesworth) are absent in this form. The muscles of the spermathecal wall and its duct probably help the sperms to migrate, but it is very likely that the glandular structure in the spermatheca may also be secreting a chemotactic substance. Otherwise it is difficult to explain why at least some of the sperms should not pass into the common oviduct as well. It may be pointed out that the secretion of the male accessory gland is a good medium to convey the sperms. In order to clear this, the problem requires a careful histological and physiological study. This question is therefore left open for future consideration.

Egg Laying.

Morice (1912), who made observations on *Phymatocera aterrima*, stated that the terebrae first pierce the cuticle of the *Polygonatum* stem by successive stabs of the abdomen as a hammer drives a nail, then the saws move backwards and forwards driving it deep in until a pocket is made and finally a rotatory movement lacerates the tissue. The terebrae are then withdrawn and re-inserted and an egg laid. The observations of Chapman (1916) on the same form are not in agreement with those of Morice. According to him the terebrae are driven into the tissue like a pair of scissors by the working of the saws and at no stage in the process are they withdrawn until an egg is laid. His investigations on *Trichiosoma* (1914) and *Pteronidea* (1920) also point to a similar conclusion regarding the working of the saws. In *Nematus ribesii* it has been seen that the saws work alternately and with an up-and-down motion like those of a true saw.

It has been stated by Morice and by Chapman (1920) that the eggs of sawflies derive nourishment from the host-plant. In the eggs of forms such as *Thrinax*, which lie exposed, a vertical incision is made in the host tissue in which the margin of the egg is trapped, thus offering it a larger absorptive surface. How this incision is made Chapman (1920) does not state. In *N. ribesii*, whose eggs are also laid exposed, a similar incision is present which is made by the sheath as the terebrae are dragged back in the process of lowering the egg to the leaf and it is very probable that in *Thrinax* also the vertical incision is made by the action of the sheaths.

I am indebted to Dr. A. D. Imms, F.R.S., for his guidance and encouragement throughout the investigation, and to Professor J. Gray, F.R.S., for providing accommodation and facilities at the Zoological Laboratory, Cambridge. The award of a Government of India Scholarship is gratefully acknowledged.

SUMMARY.

The male genitalia become inverted shortly after emergence, turning through an angle of 180° . Mating takes place end to end with the two individuals facing opposite directions. The subgenital plate (7th sternum) of the female is gripped by the outer claspers from the outside while the inner claspers press against it from the inside, thus serving an antagonistic function to the outer organs. The penis is inserted deep into the vagina and its valves open wide apart. The sperms are ejaculated in a mass into the vagina along with the secretion from the male accessory gland. Attempts have been made to study the migration of sperms into the spermatheca, where a glandular structure has been seen. It is suggested that this structure is primarily nutritive, but also probably supplies the necessary chemotactic substance.

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THE NUMBERS OF INSECTS CAUGHT IN A LIGHT TRAP AT ROTHAMSTED DURING FOUR YEARS 1933-1937

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DURING the past few years I have published several papers, chiefly in the *Transactions of the Royal Entomological Society of London*, dealing with the analysis of catches of insects in a light trap. Selections from the catches have at times been given but the complete figures have never been published.

It has been suggested that it is desirable to put the whole set of figures on record so that they can be available for anyone wishing to use them for his own interpretation or to support his own theories.

	1933										1934	
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
1	31	9	6	15	3,287	424	1,107	483	30	1	0	0
2	208	0	—	134	2,241	3,596	187	112	0	1	11	0
3	—	4	—	224	4,864	1,249	664	77	105	0	2	2
4	—	21	—	406	769	569	167	13	11	2	10	0
5	—	234	34	676	157	262	83	65	68	0	0	0
6	66	351	164	209	1,456	2,500	141	265	382	0	1	0
7	9	22	124	431	295	661	81	910	1,887	0	3	0
8	22	—	43	379	—	371	80	90	420	0	1	0
9	27	125	7	187	63	992	69	17	730	0	0	0
10	6	50	187	313	—	235	59	16	298	0	0	5
11	3	167	97	68	139	192	305	5	37	2	427	7
12	6	26	383	159	93	74	320	22	144	0	9	1
13	2	2	177	400	44	209	112	67	75	0	3	0
14	9	4	50	1,250	51	939	23	65	4	0	4	0
15	11	9	89	1,389	427	179	54	38	36	5	0	0
16	11	88	614	69	262	83	163	0	67	0	9	0
17	5	3	30	14	529	35	161	2	229	17	9	45
18	14	2	88	30	1,505	54	126	39	771	0	0	1
19	—	3	126	63	1,561	159	138	37	84	16	0	1
20	4	5	1,197	165	1,617	20	102	262	58	0	0	1
21	10	8	1,072	98	2,795	21	127	1,326	2,045	8	0	6
22	0	4	5,137	448	2,197	267	118	789	1,483	15	0	4
23	0	2	1,557	396	2,930	35	60	590	45	17	0	0
24	1	101	2,067	1,460	1,533	432	303	710	77	1	0	8
25	—	24	524	714	1,947	420	72	12	3	5	2	7
26	9	13	598	536	5,801	335	411	1	8	165	0	0
27	14	3	122	493	393	740	572	0	166	3	0	0
28	6	90	533	40	170	949	148	147	8	1	6	0
29	23	—	260	2,119	253	1,295	326	57	117	102	0	—
30	0	51	59	229	63	426	342	11	24	7	3	—
31	21	—	23	—	79	301	—	2	—	32	0	—
Total . . .	518	1,421	15,368	13,141	37,521	18,024	6,621	6,230	9,412	500	500	88
No. of days .	26	28	28	30	29	31	30	31	30	31	31	28
Mean per day	20	51	549	438	1,294	581	221	201	314	16	16	3.1

The trap was run from the 1st March 1933 to 28th February 1937 and, with the exception of May and June 1936, it only failed to work on 31 nights. During May and June 1936 a special experiment was in progress whereby the trap was only working on two nights out of three, so in each of these two months the trap was set only on 19 nights.

In all the trap was working on 1407 nights and captured a total of just over 853,500 insects. The insects were approximately 87% Diptera, 10% Lepidoptera and 3% of the remaining orders.

PROC. R. ENT. SOC. LOND. (A) 15. PTS. 7-9. (SEPTEMBER 1940.)

	1934										1935	
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
1	0	1	21	141	1,345	—	60	413	2	61	1,595	20
2	1	1	20	58	1,059	39	48	227	124	499	2,186	1
3	1	3	11	36	360	61	290	197	16	1,250	266	824
4	2	5	5	146	760	490	176	11	2,089	462	2	112
5	1	7	2	181	273	336	167	15	184	854	12	27
6	3	1	1	110	485	1,556	167	492	11	515	12	3
7	0	4	33	225	573	705	1,319	5,149	7	145	1	2
8	4	28	75	403	687	1,621	326	213	494	20	18	1
9	1	6	34	417	450	174	58	94	126	424	3	2
10	6	0	43	702	417	29	121	323	1,477	185	20	36
11	10	46	191	164	2,042	53	855	961	571	15	4	7
12	4	5	141	36	1,183	153	509	400	33	63	0	11
13	33	3	8	323	858	318	474	109	145	178	184	42
14	3	24	2	2,746	350	217	465	30	1,672	283	473	3
15	0	130	7	317	797	130	527	26	378	664	716	0
16	1	138	7	663	2,164	2,294	232	225	354	146	61	1
17	3	110	5	2,014	2,347	1,936	97	281	340	31	5	6
18	0	3	36	257	573	628	192	487	75	31	4	5
19	2	19	58	88	525	212	272	368	1	234	27	5
20	6	0	15	140	600	63	332	197	3	21	52	4
21	10	58	91	59	2,044	121	7	66	671	5	3	2
22	4	8	1,629	545	2,126	235	3	232	42	2	31	0
23	10	0	127	53	389	92	34	11	686	27	15	—
24	106	2	13	1,074	86	256	23	142	1,974	48	—	—
25	5	2	34	388	488	78	34	31	167	34	—	4
26	12	5	18	319	487	68	23	88	170	92	0	1
27	0	33	53	54	264	144	599	33	1,307	58	0	22
28	1	13	66	145	131	179	1,627	12	964	106	0	53
29	0	4	94	226	314	19	112	9	723	21	27	—
30	0	6	14	1,113	1,046	19	125	7	65	119	32	—
31	3	—	265	—	266	31	—	3	—	21	0	—
Total . . .	232	665	3,119	13,143	25,479	12,284	9,274	10,852	14,872	6,613	5,749	1,195
No. of days .	31	30	31	30	31	30	30	31	30	31	29	26
Mean per day	7.5	22	101	438	822	410	309	350	496	213	198	46

	1935										1936	
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
1	17	4	8	76	16,797	203	383	53	217	2	691	253
2	81	0	444	47	18,120	2,015	237	319	331	0	74	2
3	72	1	8	50	852	3,633	729	598	3,069	1	12	19
4	5	0	446	95	896	882	171	283	2,128	0	3	0
5	6	0	754	61	7,802	5,417	945	176	326	3	4	2
6	83	53	2,893	44	768	4,508	262	29	26	59	40	0
7	1	64	75	17	392	7,639	50	17	12	7	23	0
8	1	51	54	14	360	8,942	203	9	379	125	114	0
9	0	2	3	295	6,217	435	171	199	11	26	3	0
10	0	0	9	154	15,751	558	258	18	148	4	1	6
11	0	4	13	28	4,836	—	171	14	124	10	9	0
12	0	1	13	252	4,456	524	98	12	2	1	0	0
13	7	61	3	266	3,045	40	136	31	15	131	1	1
14	98	11	22	179	3,277	1,488	409	3,529	12	26	0	3
15	1	15	8	124	2,895	1,849	50	364	49	9	0	1
16	224	4	3	33	464	1,181	21	1,517	46	0	0	1
17	84	3	6	266	820	2,057	54	122	16	0	0	1
18	15	24	6	2,989	56	380	218	18	24	1	0	15
19	1	94	49	530	232	1,122	218	35	29	3	1	1
20	27	17	19	1,043	110	2,300	1,724	6	574	1	0	2
21	292	12	5	1,775	1,819	3,389	714	157	637	1	0	0
22	5	12	4	6,993	9,805	1,376	163	8	82	0	2	24
23	6	54	40	20,170	4,354	2,629	38	866	4	0	1	4
24	120	3	17	23,804	1,410	441	312	225	2	9	1	—
25	2	61	16	4,646	2,533	1,928	56	5	5	14	397	3
26	35	3	35	13,657	1,046	588	723	283	147	19	11	3
27	15	—	924	2,925	590	43	1,658	125	144	85	5	1
28	—	35	599	11,812	2,527	94	4,990	1,288	32	180	53	18
29	15	41	178	11,314	362	172	674	3	16	46	2	0
30	44	10	1,055	73,106	142	3,445	45	317	2	27	49	—
31	101	—	481	—	349	610	—	1,146	—	5	39	—
Total . . .	1,358	641	8,192	176,735	113,265	59,888	15,880	11,772	8,603	795	1,539	359
No. of days .	30	29	31	30	31	30	30	31	30	31	31	28
Mean per day	45	22	264	5,891	3,654	1,996	529	360	287	26	50	13

	1936										1937	
	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.
1	0	334	10	25	378	1,248	1,281	1,872	383	27	9	4
2	2	15	—	2	1,176	108	664	26	239	87	21	12
3	4	0	21	42	1,099	33	462	8	388	36	50	28
4	2	0	15	36	726	92	692	—	52	0	0	1,582
5	0	4	—	—	3,288	1,684	249	4	12	0	0	21
6	30	4	174	287	1,144	2,647	252	10	26	1	0	4
7	15	2	223	709	327	3,151	28	67	57	0	1	864
8	33	3	174	—	1,734	843	1,221	32	20	163	0	54
9	91	2	—	400	28	12,996	736	42	213	4	2	0
10	3	6	244	—	265	12,267	2,160	53	—	9	12	—
11	0	1	77	179	82	4,935	461	18	290	0	83	1
12	0	0	—	—	145	3,008	5,989	7	1,193	76	83	8
13	1	4	45	240	55	2,405	689	113	73	2	166	72
14	1	50	—	121	1,500	3,201	586	223	34	—	20	651
15	13	6	174	—	193	6,000	451	174	47	2	2	41
16	1	1	—	325	6,343	9,499	2,406	289	1,357	11	0	8
17	6	0	283	2,277	1,093	6,358	3,026	25	34	18	60	5
18	0	6	—	1,612	146	—	5,284	68	17	55	2	143
19	52	5	101	—	272	2,366	759	27	111	4	1	—
20	52	0	19	4,049	1,492	4,160	2,110	223	4	34	2	25
21	16	1	—	—	1,490	—	330	324	30	21	12	222
22	140	4	129	—	1,801	849	1,355	3,637	4	283	837	0
23	9	12	4	3,203	135	3,483	310	1,755	98	0	20	1
24	4	58	—	3,409	607	6,213	3,060	33	0	5	121	2
25	12	25	391	—	89	10,089	2,009	12	638	—	106	0
26	—	10	—	5,094	113	185	462	20	73	128	1	0
27	5	72	427	—	4,156	183	94	4	22	0	1	0
28	—	203	10	678	2,702	729	33	30	77	14	0	0
29	2	78	—	2,131	1,099	1,645	73	173	267	60	0	—
30	5	4	4	—	1,516	1,895	613	2,001	5	2	20	—
31	133	—	—	—	10,859	3,037	—	58	—	14	87	—
Total . . .	632	910	2,525	24,819	46,054	105,309	37,846	11,328	5,768	1,056	1,719	3,848
No. of days .	29	30	19	19	31	29	30	30	29	29	31	26
Mean per day	22	30	133	1,306	1,486	3,631	1,262	378	199	36	55	146

The following papers deal with the analysis of the captures.

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——, 1936, New species of Coccidae, *Trans. R. ent. Soc. Lond.* 84 : 901-936.

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TO BE HELD IN THE SOCIETY'S ROOMS
41, Queen's Gate, S.W.7

1940.

WEDNESDAY, October	2	5.0 p.m.
„ November	6	5.0 p.m.
„ December	4	5.0 p.m.

1941.

WEDNESDAY, January	15	(ANNUAL MEETING)
„ February	5	5.0 p.m.

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